CLAIMS

What is claimed is:

1. A method for inspecting a channel using a flexible surface sensor connected to at least one elastic member containing a pressurizable chamber for maintaining the sensor position proximate to a component surface, said method comprising:
inserting the sensor with a deflated chamber into a first channel opening;
inflating the chamber; and
measuring the sensor response as the sensor is moved along the channel.

2. The method as claimed in Claim 1 wherein the sensor is an eddy current sensor.

3. The method as claimed in Claim 1 wherein the sensor is an eddy current sensor array.

4. The method as claimed in Claim 1 further comprising moving the sensor out of the second channel opening.

5. The method as claimed in Claim 4 further comprising performing a second scan by deflating the chamber, inserting the sensor into the second channel opening, inflating the chamber, and measuring the sensor response as the sensor is withdrawn from the channel through the first channel opening.

6. The method as claimed in Claim 5 wherein the sensor is inserted into the channel openings a distance less than one-half the channel length.

7. The method as claimed in Claim 6 wherein said distance is approximately one-third of the channel length.

8. The method as claimed in Claim 5 further comprising combining the measurement responses from the scans.

9. The method as claimed in Claim 8 wherein the combination is an average of the scans.

10. The method as claimed in Claim 1 further comprising means for measuring sensor position.

11. A method for inspecting a channel using at least one flexible sensor connected to an elastic member containing a pressurizable chamber, said method comprising:

inserting the sensor into a first opening of the channel and inflating the chamber;

measuring the response as the sensor is moved through a second channel opening;

deflating the chamber and inserting the sensor through the second channel opening;

inflating the chamber, and measuring the response as the sensor is withdrawn through the first channel opening.

12. The method as claimed in Claim 11 wherein the sensor is an eddy current sensor.

13. The method as claimed in Claim 11 wherein the sensor is an eddy current sensor array.

14. The method as claimed in Claim 11 wherein the sensor is inserted into the channel openings at a distance approximately one-third of the channel length.